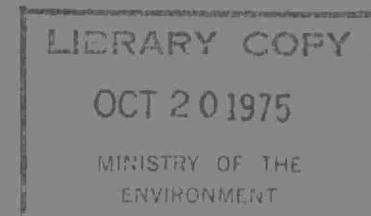


TOWN OF  
MIDLAND  
WATER POLLUTION CONTROL PLANT

OPERATING SUMMARY

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REGIONAL OPERATIONS DIVISION

DIRECTOR, CENTRAL REGION  
P. Cockburn

MANAGER, UTILITY OPERATIONS  
A. Thomas

MIDLAND  
WATER POLLUTION CONTROL PLANT

operated for

THE TOWN OF MIDLAND

by the

MINISTRY OF THE ENVIRONMENT

1974 ANNUAL OPERATING SUMMARY

prepared by

Plant Performance Unit

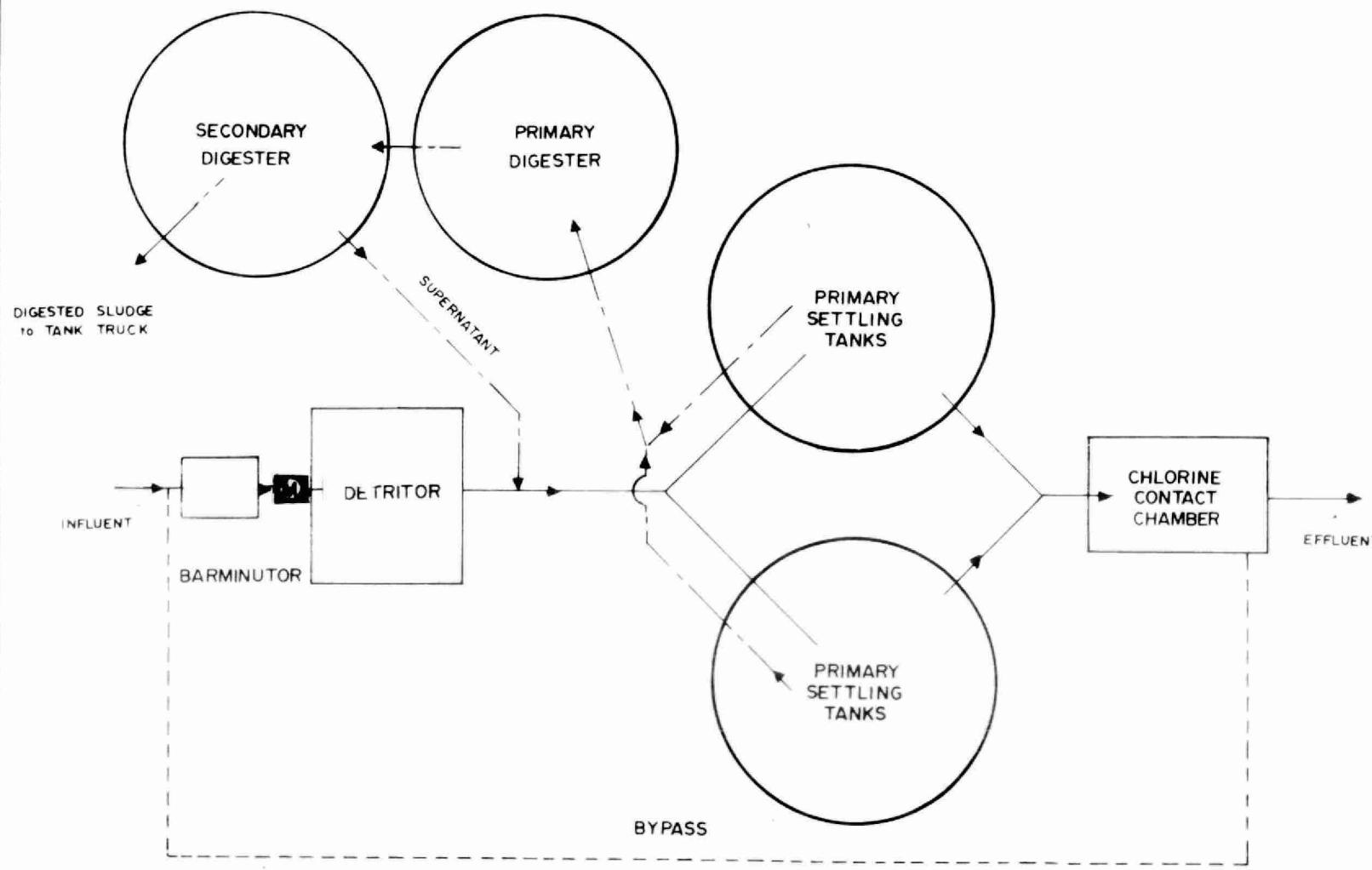
TECHNICAL SERVICES BRANCH

T. Cross, Director

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TOWN OF MIDLAND WPCP



## DESIGN DATA

PROJECT Town of Midland WPCP

PROJECT NO. 2-0146-63

TREATMENT Primary

DESIGN FLOW 1.25 mgd

DESIGN POPULATION 12,500

BOD - Raw Sewage 225 mg/l  
- Removal 40%

SS - Raw Sewage 300 mg/l  
- Removal 60%

### PRIMARY TREATMENT

#### Comminution

Type: Barminutor  
Size: One Model C

#### Grit Removal

Type: Dorr Detritor  
Size: One 12' x 12' x 16"  
(1,200 gal)  
Retention: 1.38 min

#### Primary Sedimentation

Type: Dorr  
Size: Two 50' dia x 8' swd  
195,000 gal)  
Retention: 3.75 hours  
Loading: Surface, 319 gal/ft<sup>2</sup>/day  
Weir, 3970 gal/ft/day

#### CHLORINATION

Type: W & T, Type A711 (Auto)  
Size: One 1000 lb/day

#### Chlorine Contact Chamber

Size: Irregular (16,200 gal)  
Retention: 18.7 min

#### OUTFALL

615' of 24" pipe to Georgian Bay

### SLUDGE HANDLING

Digestion System - Two Stage

#### Primary --

Type: Babcock-Wilson  
Draft tube mixers (2)  
Size: One 30' dia x 22' (15,600  
cu ft or 97,200 gal)  
Loading: 4.3 lb/cu ft/mo

#### Secondary --

Type: Fixed steel cover  
Size: One 30' dia x 21½' (15,200  
cu ft or 94,600 gal)  
Total Loading: 2.2 lb/cu ft/mo

### PUMPING STATIONS

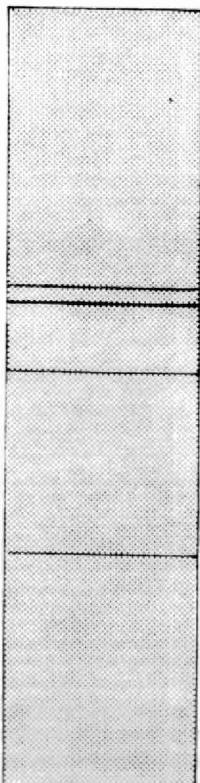
#### #1 Pumping Station

Type: Worthington  
Size: Two 780 gpm @ 37' tdh  
One 2600 gpm @ 60' tdh

#### #2 Pumping Station

Type: Flygt (submersible)  
Size: Two 83 gpm @ 30' tdh

# ANNUAL COSTS



## 1974 OPERATING COSTS

- SALARIES & WAGES 36 %
- EMPLOYEE BENEFITS 2 %
- TRANSPORTATION & COMMUNICATIONS <1 %
- SERVICES 24 %
- SUPPLIES & EQUIPMENT 37 %
- AQUISITION/CONSTRUCTION OF PHYSICAL ASSETS
- TRANSFER PAYMENTS
- OTHER TRANSACTIONS

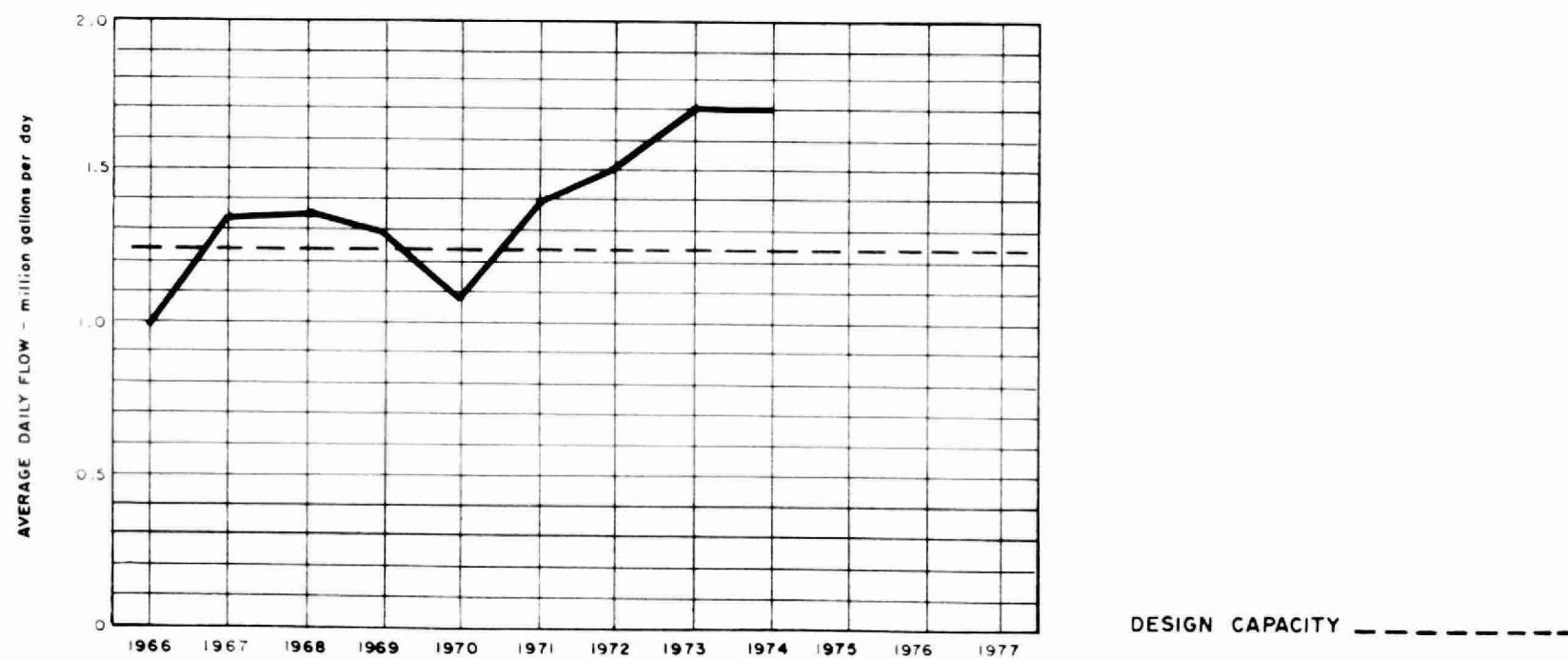
## YEARLY OPERATING COSTS

YEAR	SEWAGE TREATED in million gallons	TOTAL OPERATING COSTS	UNIT COSTS	
			\$/M.G	t/lb BOD
1969	488	35,187	72	26
1970	485	34,076	70	14
1971	511	37,863	74	24
1972	548	43,146	79	22
1973	608	44,145	73	14
1974	625	95,424	153	61

# OPERATING EXPENDITURES

Regular Staff	\$ 25,854	\$
Casual (Unclassified) Staff	<u>8,012</u>	
<b>TOTAL SALARIES AND WAGES</b>	<b><u>33,866</u></b>	
<b>TOTAL EMPLOYEE BENEFITS</b>	<b><u>2,437</u></b>	
<b>TOTAL TRANSPORTATION AND COMMUNICATIONS</b>	<b><u>897</u></b>	
Insurance	<u>1,465</u>	
Sludge Haulage	<u>18,089</u>	
Repairs and Maintenance	<u>2,540</u>	
Other Services	<u>1,289</u>	
<b>TOTAL SERVICES</b>	<b><u>23,383</u></b>	
Machinery and Equipment	<u>2,096</u>	
Chemicals	<u>17,151</u>	
Utilities	<u>12,210</u>	
Other Supplies and Equipment	<u>3,384</u>	
<b>TOTAL SUPPLIES AND EQUIPMENT</b>	<b><u>34,841</u></b>	
<b>TOTAL AQUISITION/CONSTRUCTION OF PHYSICAL ASSETS</b>	<b><u>                  </u></b>	
<b>TOTAL TRANSFER PAYMENTS</b>	<b><u>                  </u></b>	
<b>OTHER TRANSACTIONS</b>	<b><u>                  </u></b>	
<b>GRAND TOTAL</b>	<b>GRAND TOTAL</b>	<b>\$ 95,424</b>

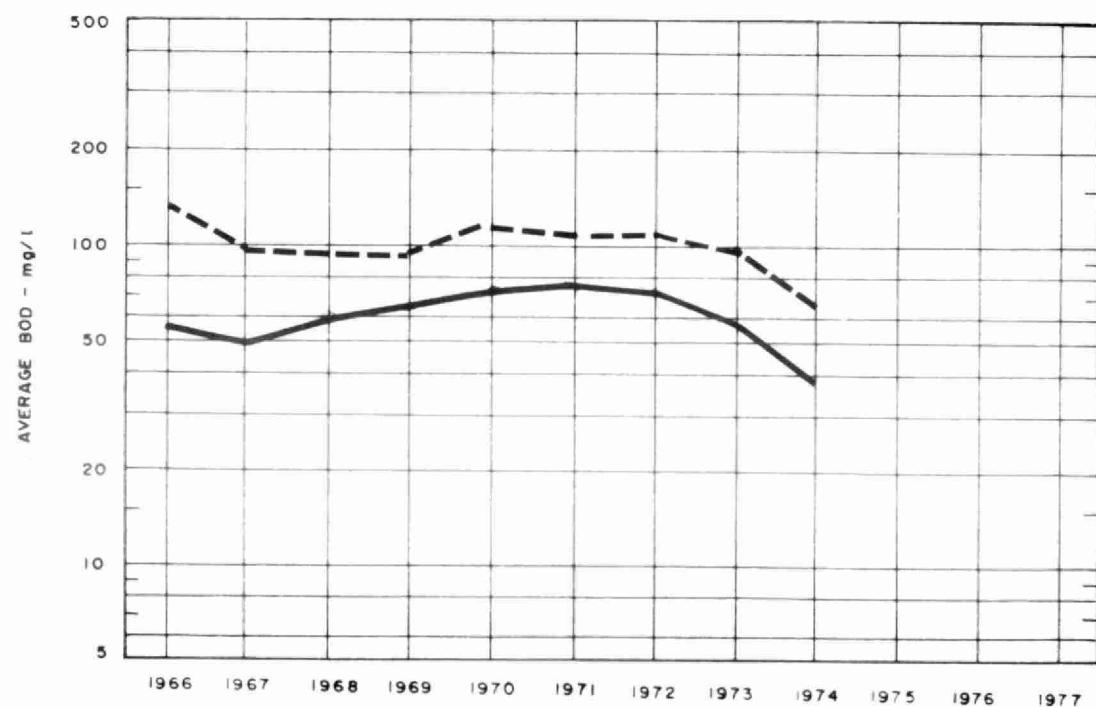
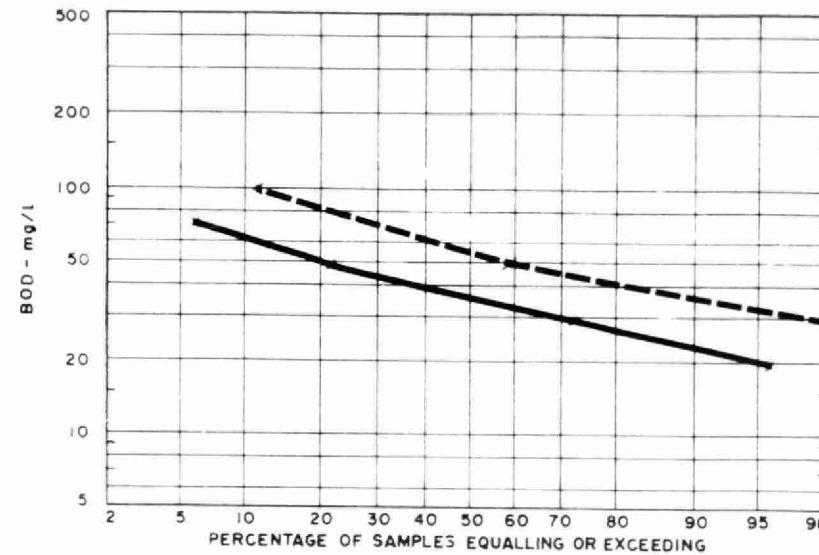
# PROCESS DATA FLOWS



# PLANT PERFORMANCE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mil. gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION		INFLUENT mg/l	EFFLUENT mg/l	REDUCTION		INFLUENT mg/l P	EFFLUENT mg/l P
						%	$10^3$ pounds			%	$10^3$ pounds		
JAN	51.2	1.65	2.36	69	42	39	13.8	224	60	73	84.0	16.1	7.2
FEB	46.8	1.67	2.37	84	59	30	11.7	84	65	68	8.8	17.8	7.0
MAR	63.8	2.06	4.35	49	38	23	7.0	140	50	73	57.4	21.0	12.6
APR	66.6	2.22	3.86	49	26	47	15.3	117	28	76	59.3	10.3	2.1
MAY	57.4	1.85	2.56	45	30	33	8.6	138	39	72	56.8	10.4	4.4
JUNE	47.3	1.58	1.88	84	38	55	21.8	180	39	78	66.7	17.3	3.6
JULY	44.0	1.42	2.31	76	40	47	15.8	198	47	76	66.4	9.0	6.7
AUG	47.3	1.53	3.02	60	36	40	11.4	185	62	66	70.5	22.2	2.3
SEPT	46.6	1.56	2.25	48	29	40	8.9	193	54	72	64.8	19.0	4.5
OCT	46.7	1.51	1.91	62	34	45	13.1	121	33	73	41.1	12.6	5.3
NOV	47.2	1.57	2.10	43	32	26	5.1	173	53	69	56.6	12.0	3.7
DEC	43.1	1.39	1.80	70	45	36	10.8	197	58	71	59.9	8.3	6.4
TOTAL	625.3	-	-	-	-	-	156.3	-	-	-	712.8	-	-
AVG.	52.1	1.71	4.35	63	38	40	13.0	164	50	70	59.4	15.5	5.8
No. of Samples	-	-	-	73	72	-	-	73	71	-	-	72	71

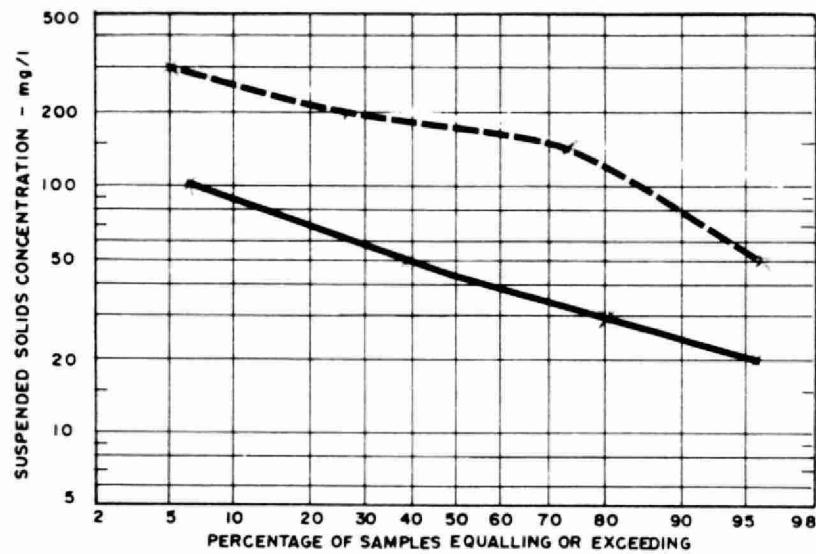
# BIOCHEMICAL OXYGEN DEMAND



PLANT INFLUENT    

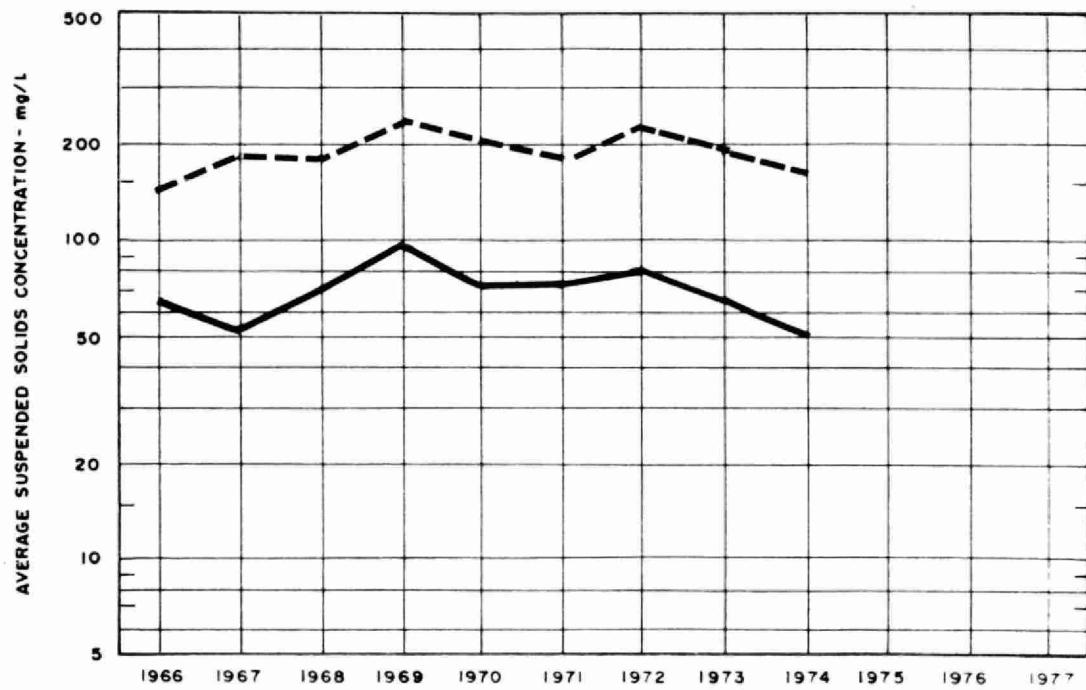
PLANT EFFLUENT

# SUSPENDED SOLIDS

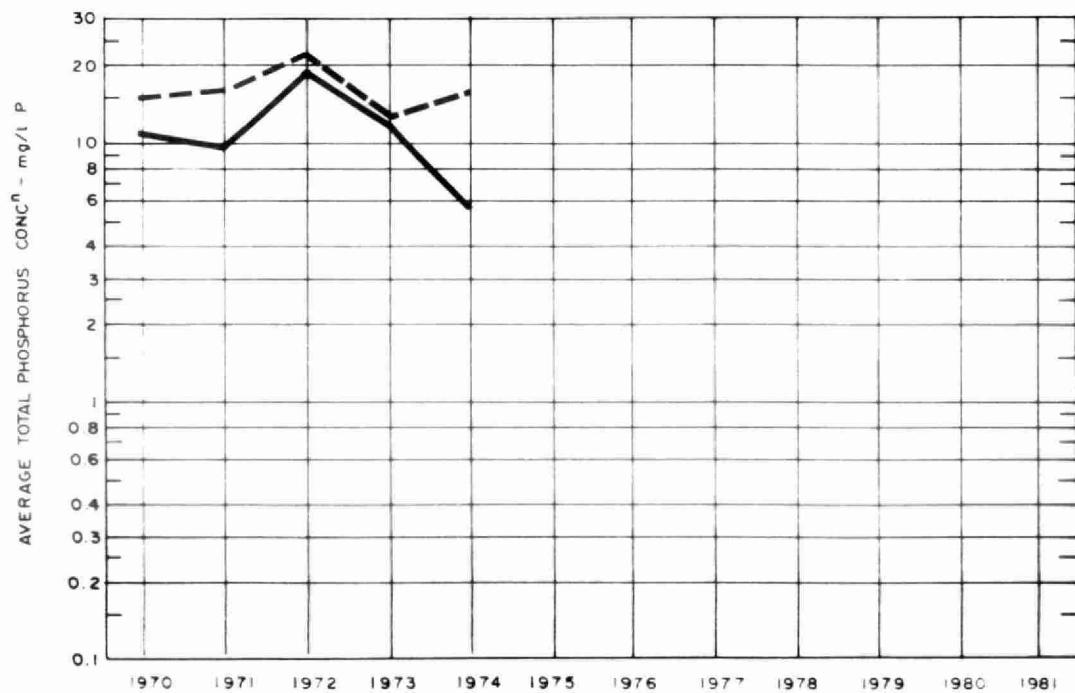
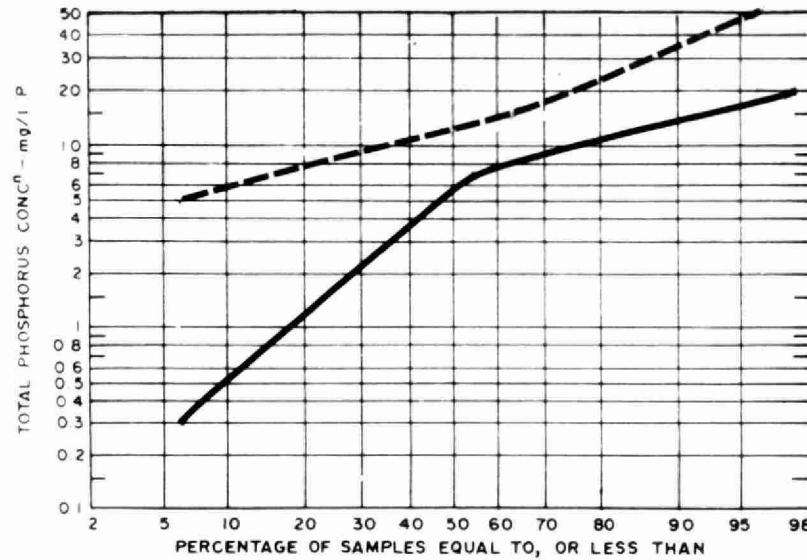


PLANT INFLUENT

PLANT EFFLUENT



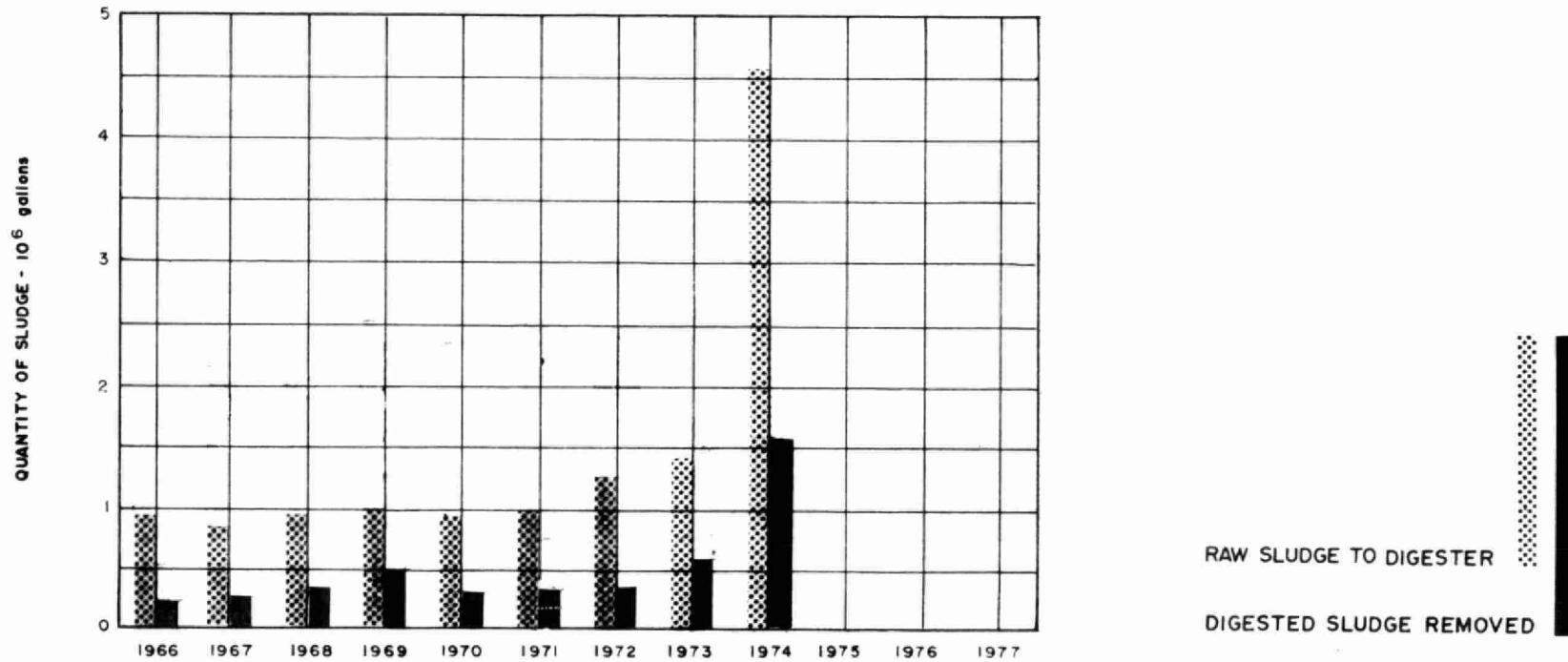
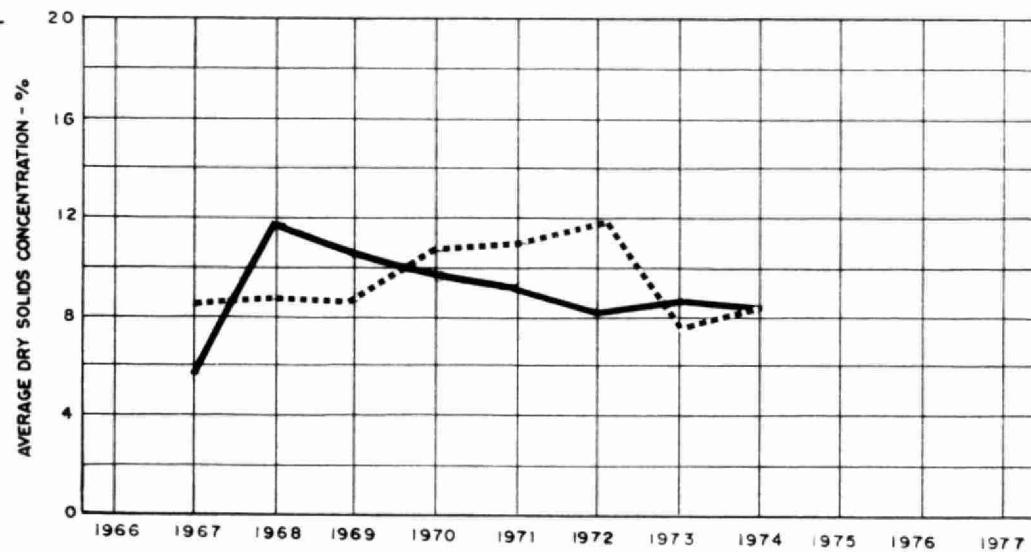
# PHOSPHORUS



PLANT INFLUENT -----  
PLANT EFFLUENT —————

# DIGESTION

RAW SLUDGE .....  
DIGESTED SLUDGE —



## TREATMENT DATA

MONTH	GRIT	CHLORINATION	SLUDGE DIGESTION and DISPOSAL								
			RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT		SLUDGE HAULED cubic yards
			QUANTITY cubic feet	CHLORINE USED $10^3$ pounds	AVERAGE DOSAGE mg/l	QUANTITY $10^5$ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	QUANTITY REMOVED $10^5$ gallons	TOTAL SOLIDS %	
JAN	33	2.4	4.8	1.4			.42	8.5		.3	252
FEB	28	2.0	4.2	2.0	10.3	36	.35	9.7			210
MAR	120	2.6	4.1	2.6	9.8	32	.50	8.8			294
APR	209	2.5	3.8	5.3			2.29	9.0			1360
MAY	84	2.2	3.8	2.2	11.7	28	.64	8.4			378
JUNE	83	2.0	4.2	9.1	7.1	28	.55	8.5	27	7.7	327
JULY	102	2.0	4.6	6.1	7.9	26	2.79	9.0	24	.3	1656
AUG	206	2.1	4.5	3.6	8.7		1.44	9.5		4.0	854
SEPT	156	2.2	4.6	4.5	7.8	19	2.48	8.9		5.3	1476
OCT	99	2.2	4.6	2.0	7.0	33	1.39	7.8	23	1.5	825
NOV	36	2.0	4.2	4.7	7.1	25	2.35	6.8	22	2.0	1399
DEC	28	1.9	4.3	2.4	6.6	41	1.49	5.9	25	.9	882
<b>TOTAL</b>	<b>1184</b>	<b>26.1</b>	<b>—</b>	<b>45.9</b>	<b>—</b>	<b>—</b>	<b>16.69</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>9913</b>
<b>AVG.</b>	<b>1.9</b> <b>cubic feet/mil gal</b>	<b>2.2</b>	<b>4.1</b>	<b>3.8</b>	<b>8.4</b>	<b>30</b>	<b>1.38</b>	<b>8.4</b>	<b>24</b>	<b>2.8</b>	<b>826</b>

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